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ORIGINAL ARTICLE

To Study Compliance of Drugs used in Treatment of Hypertension in a Tertiary Care Hospital

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Abstract

Background: Hypertension is one of the major health burdens in the general population which can cause many cardiovascular and neurological complications hence compliance to drugs used for hypertension is very essential to prevent such complications. However, poor compliance to these medications for its management is a major drawback faced by physicians. So, this study was conducted to assess compliance rate for drugs of hypertension and factors affecting it among the patients of a tertiary care hospital.

Methodology: A questionnaire was distributed to 100 patients who were known cases of hypertension, containing questions related to demographic profile of patients and their compliance to medications. Comparison between good and poor compliance was done using six factors which were age, sex, literacy, monthly income of patients, other associated chronic illness, number of times medicines were prescribed in a day. Odds ratio and 95% confidence interval were calculated and chi-square test was applied for analysis of data using these factors individually. Overall good and poor compliance rate was determined on the basis of all these factors.

Results: Female patients, literate patients, patients having monthly income of more than 50000/- and patients with no other associated chronic illness were found to be more compliant to medications ($p<0.05$). Overall good compliance and poor compliance were found to be 25% and 75% respectively.

Conclusion: Overall compliance to medications was found to be very poor in patients receiving antihypertensive medications and there is an urgent need to come out with measures to improve the compliance rate in these patients.

Keywords: Compliance rate, factors affecting the compliance, questionnaire-based survey, cross-sectional observational study.

Introduction

Hypertension is a major health burden to general population due to its high prevalence rate all around the globe. It is associated with increased risk of coronary heart disease and stroke [1]. Hypertension is a global issue and ranks third for causing reduction in disability-adjusted life-years. It is known to be responsible for causing 57% of deaths related to stroke and 24% of deaths related to coronary heart disease in India [2]. Hypertension is one of the most important modifiable risk factors for cardiovascular diseases, the major key factors in the control of hypertension are adherence to treatment with antihypertensive medication. It is estimated that within one year, almost half of the patients drop out from the treatment entirely. Failure to control hypertension causes an unacceptable burden on patients and their families. It not only causes additional personal cost, to the individual patient, but it also creates huge economic burdens for the general population [3].

One of the greatest challenges faced by the medical professionals is non-compliance of patients to medical treatment. Efforts of the physicians to explain and improve patient compliance to medications are often seems to be ineffective. There are some adherence interventions but most of them seem to fail and lack sufficient explaining power. Because of the problem of non-compliance, many

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patients do not get the maximum benefit of treatment, leading to poor health outcomes, increased health care costs and lower quality of life. Non-compliance rates have remained nearly unchanged in the last decades, in spite of having many advances in adherence research [4].

Few studies show that almost 25% of medicines prescribed to the patients are not consumed by them and this could lead to significant cardiovascular morbidity and mortality, vision loss, leukaemia relapse, rejection of transplanted kidneys and other indicators of treatment failure. Unless clinicians make specific efforts to monitor the degree of compliance on a regular basis, patients are reluctant to admit non-compliance [5].

Non-compliance can be rational or irrational, intentional or unintentional, due to lack of motivation or memory problems and may or may not cause by adverse effects [6]. Non-compliance to medications was always a complex problem, for patients with associated chronic illness. Many medications have shown to do more good than harm when taken as prescribed but still poor compliance is a major problem in health care [7]. The present study deals with determining patient's compliance with drugs against hypertension and will also focus on elaborating most common factors associated for poor compliance of drugs.

Methodology

The present cross sectional observational study was conducted after obtaining approval from Institutional Ethics Committee as a survey among the 100 patients who were known cases of hypertension visiting OPD or admitted in wards of Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune. Written Informed consent was taken from patients before providing them the questionnaire. Patients were selected as per the inclusion and exclusion criteria which are mentioned below. Patients of age above 18 years were included in the study and patients who were diagnosed with hypertension in the time period of less than 3 months were excluded from the study.

Study Technique

Research tool used in the study was questionnaire based survey [3,8]. A pre-validated questionnaire was distributed to the patients containing information as mentioned in sampling technique. Factors affecting patient's compliance against drugs were assessed and comparison of good compliance, poor compliance and non-compliance was made considering these factors. For assessing compliance, patients were asked to make a tick mark in their correct answer against the question mentioned in the part B of sampling technique. Parameters for assessment of compliance rate were: Age of the patient, sex, literacy, monthly income of the patient, history of any other chronic illness (other than hypertension) and number of times medicine prescribed in a day.

Sampling Technique

A questionnaire was provided to the patients which consist of:

Part A: Details of Patients including parameters as mentioned in study technique.

Part B: Questions regarding compliance of drugs.

Q1. Do you miss any dose of medicine of high blood pressure?

A. I do not miss a single dose of medicines as far as I can remember.

B. I remember, I miss the dose of medicines sometimes.

C. I do not take my medicines most of the times or at all.

Q2. Why do you miss Reasons for poor compliance of drugs?

(Applicable for those who miss the dose or do not take it)

A. I forget to take my regular dose of medicine sometimes.

B. I forget to carry them with me when going on work from house or out of station.

C. I forget to buy medicines regularly and miss few doses by the time I can buy them.

D. Medicines are costly for me to buy.

E. I don't consume them as I don't want to get adapted to them.

F. I am afraid of taking medicines due to its long-term side-effects.

G. I take too many medicines, I get confused whether I took medicine or not and forget sometimes because of confusion.

H. I do not take medicines because I hope I can control my B.P. with physical measures.

I. Due to my physical disability, I take wrong medicines sometimes.

J. I take my medicines only when my B.P. is not normal.

K. Any Other Reason, Please specify: _____

Data Analysis

Data was collected in Microsoft excel sheets and was analyzed using epi info 7 software. Odds ratio, 95% Confidence Interval was calculated for the obtained data and chi-square test was applied for statistical significance. p-value <0.05 was considered statistically significant.

Results

It was observed that no patients were totally non-compliant to the drug therapy. So, patients were assessed for good or poor compliance on basis of individual parameters (Table 1). It was observed that odds of patients of <50 years of age were 0.5833 times more than the odds of patients of >50 years of age to be more compliant to medicines. However, this finding was not statistically significant (p>0.05). Further, odds of female patients were 6.3333 times more than odds of male patients to be more compliant to medicines. This finding was highly statistically significant. Odds of literate patients were 0.2488 times more than odds of illiterate patients to be more compliant to medicines. This finding was highly statistically significant. It was also observed that odds of patients having monthly income of > 50000/- were 0.2488 times more than odds of patients having monthly income of <50000/- to be more compliant to medicines. This finding was highly statistically significant. The odds could not be defined but patients with other associated chronic illnesses were seen to be less compliant than patients who does not have any other associated illness. This finding was highly statistically significant. In addition, odds of patients who were prescribed medicines once in a day was 1.1645 more than odds of patients who were prescribed medicines twice in a day to be more compliant to medicines but the results were not statistically significant. An overall compliance rate was assessed by considering all the above factors, it was found that good compliance rate was 25% and poor compliance rate was 75% (Fig.1).

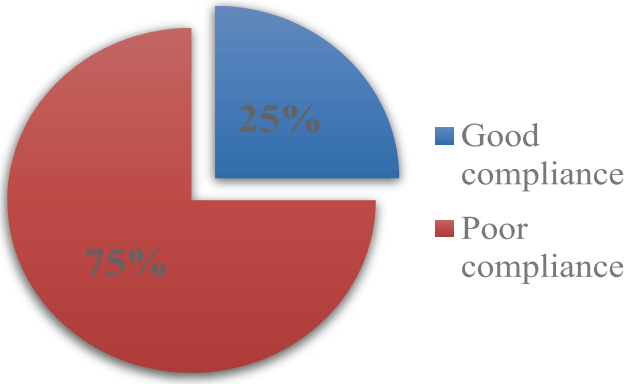

Figure 1: Comparison of overall compliance rate for drugs among patients of hypertension

Discussion

Effective pharmacological treatment of patients with hypertension decreases morbidity and mortality from cardiovascular disease, reducing the risk of strokes and heart failure.

Compliance determines the extent to which a patient's behaviour coincides with medical advice. Poor compliance is one of the largest problems in therapeutics [9]. Some common reasons of poor or non-compliance reported involves taking medication at the wrong times, increasing or decreasing the frequency of doses, taking an incorrect dose, stopping the treatment too soon, non-participation in clinic visits, delaying in seeking healthcare, white-coat compliance, failure to follow doctor's instructions [10]. It is depended on various factors like age, sex, income, religion, etc.

Table 1: Assessment of compliance rate in patients with hypertension (n=100)

Variables	Good Compliance	Poor Compliance	Chi-square Statistics (Odds ratio)
Age Group			
>50	15 (21.74%)	54 (78.26%)	r=0.5833 (CI;0.2266 to 1.5019), p>0.05
≤50	10 (32.26%)	21 (67.64%)	
Gender			
Female	19 (43.18%)	25 (56.82%)	r=6.3333(CI;2.2479 to 17.8439), p<0.001
Male	6 (10.71%)	50 (89.29%)	
Literacy			
Illiterate	9 (14.75%)	52 (85.25%)	r=0.2488(CI; 0.0960 to 0.6451), p<0.01
Literate	16 (41.03%)	23 (58.97%)	
Monthly Income			
≤50000	9 (14.75%)	52 (85.25%)	r=0.2488 (CI;0.0960 to 0.6451), p<0.01
>50000	16 (41.03%)	23 (58.97%)	
Presence of any other Chronic Illness			
No	25 (32.05%)	53 (67.95%)	Undefined, p<0.01
Yes	0 (0%)	22 (100%)	
No. of Times Medicines are Prescribed in a day			
Once	6 (27.27%)	16 (72.73%)	r=1.1645(CI;0.3989 to 3.3993), p>0.05
Twice	19 (24.36%)	59 (75.64%)	

A similar study was done by Osamor PE et al in 2011 at Nigeria who reported an overall good compliance rate of 50.7% and poor compliance rate of 41.5% among the patients of hypertension towards their medicines; they studied association with factors like age, sex, religion, marital status, level of education, how treatment is being taken (at hospital, as a out-patient). Most common reasons for poor compliance which were reported by this study are side-effects of drugs, forgetfulness, having a busy schedule but limited medication and lack of funds to purchase drugs [3].

In the present study, it was observed that overall good compliance rate was 25% and poor compliance rate was 75% among the patients towards their medicines; factors which were studied to assess their association with the compliance rate were age, sex, literacy rate, monthly income, any other chronic illness, number of times medicines were prescribed in a day.

Compliance rate with the drugs was found to be more in age group of <50 years as compared to that of >50 years of age group patients. In older patients (>50 years), mostly people in this age group had some illness like vision, hearing problems, mental deterioration, dependence on others for their daily work all these factors affect the compliance to medicines. Middle aged patients (<50 years) were found to be busy in their daily routine leading to forgetfulness or neglecting attitude towards their medicines, influencing the compliance towards medicines.

It was also seen that males were less compliant to their medicines because of their busy schedule, neglecting attitude and preference to take medicines when their blood pressure is not in normal range whereas females were mostly health conscious, work from their home, give more attention to medicines and were more compliant to medicines.

Literacy is one of the most important preventable cause of poor compliance among patients. It was found that compliance with the drugs was more in literate patients as compared to that of illiterate patients. There are many people in India who even lack in the basic education which leaves them in troublesome situations most of the times. It was seen that illiterate patients fail to understand importance of medicines so they had a propensity of low compliance as compared to that of literate patients. Literate patients were more compliant but they also failed to achieve 100% good compliance towards the medicines due their forgetfulness or neglecting attitude.

Monthly income is another important factor affecting compliance rate of medicines. Patients were divided into two categories, those with monthly income of <50000/- and those with monthly income of > 50000/-. In this study patients with lowest income of 6000/- to the highest income of more than 100000/- were included. Compliance with the drugs was more in patients with income of > 50000/- as compared to that of patients with income of < 50000/-. It was seen that patients with low monthly income had many family responsibilities so sometimes they were not capable of buying medicines which lowered their compliance to medicines and those with high income forget to buy their medicines regularly or let go attitude had less compliance towards medicines

Patients with other chronic illnesses include diabetics, cancer patient etc were included in the study. All such patients usually had so many medicines per day which may lead to confusion in medicines specially if they are illiterate or have some visionary problems. It was found that compliance with the drugs was more in patients not having other chronic illnesses as compared to that of patients having chronic illnesses. Here, it was observed that reason for poor compliance was consumption of too many drugs, unaffordability of so many medicines, forgetfulness raised due to confusion of medicines.

When drugs were prescribed more than once in a day, it was seen that few patients consumed medicines one time in a day properly but forget to take medicines second time due to work load or unavailability of medicines which led to lowering of compliance in patients toward their medicines. Compliance rate was observed to be more in patients who are prescribed medicines once in a day as compared to that of patients who are prescribed medicines twice a day. One other rare reason was seen that patient take medicines once if they are prescribed twice due to fear of adaptability and adverse effects of drugs.

Compliance towards the medicines can be improved by a good doctor-patient relationship, it is of utmost importance that doctor should explain the importance of consuming medications and the ill effects of missing the dose of the medications and it is patient's responsibility to be completely compliant to medicines to prevent the disabilities arising due to hypertension.

There is a need to come out with the measures to improve the compliance. One such exemplary measure could be development of software or a log book which could be maintained by patients on the regular basis so whenever they come across the log book or software in the mobile phones, it would remind them to consume their medication which could also be checked by their physicians during their follow-up visits.

Conclusion

From this study it can be concluded that overall patients had very low compliance rate than expected for the drugs used in hypertension as good compliance rate is found to

be 25% in this hospital. Poor compliance needs to be studied in future to improve the compliance to the medicines to prevent their implication on clinical and economic outcomes.

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